
Suisun Marsh Monitoring Program Channel Water Salinity Report

Reporting Period: November and December 2000

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RESULTS

Channel Water Salinity Compliance

State Water Resources Control Board channel water salinity standards for the Suisun Marsh were met at all five compliance stations during November and December 2000 (Table 1). Compliance with channel water salinity standards was determined for each compliance station by comparing November and December's mean high-tide specific conductance (SC) with the standards. The standard for compliance stations C-2 (Collinsville), S-64 (National Steel), and S-49 (Beldon's Landing) for November 2000 was 15.5 millisiemens per centimeter (mS/cm). The November 2000 standard for compliance stations S-21 (Sunrise) and S-42 (Volanti) was 16.5 mS/cm. The December 2000 standard was 15.5 mS/cm for all compliance stations.

The progressive mean SC for each station is used to track salinity conditions during each month (Figures 1 and 2). The progressive mean is calculated for each compliance station by averaging mean high-tide SC for a given day and all previous days that month. New progressive mean calculations begin at the start of each month.

Delta Outflow

Relatively low Delta outflow occurred during most of November and December 2000 (Figure 3). The monthly mean Net Delta Outflow Index (NDOI) for these months is listed below.

Month	Mean NDOI (cubic feet per second)
November 2000	5,697
December 2000	7,016

The NDOI is the estimated average daily rate of outflow from the Delta.

Suisun Marsh Salinity Control Gate (SMSCG) Operations

Operations and flashboard installations at the SMSCG during November and December 2000 are summarized below.

Date	Flashboard Installation	Gate Status
November 4 - December 31, 2000	Full	Operating

Rainfall

Total monthly rainfall at the Waterman Gauging Station in Fairfield during November and December 2000 is listed below.

Month	Total Rainfall (inches)
November 2000	1.16
December 2000	1.13

DISCUSSION

Factors Affecting Channel Water Salinity in the Suisun Marsh

Factors that affect channel water salinity levels in the Suisun Marsh include:

- delta outflow;
- tidal exchange;
- rainfall;
- local creek inflow;
- managed wetland operations; and,
- operation of the SMSCG and its flashboard configurations.

State Water Resources Control Board (SWRCB) Order WR 98-6, issued September 25, 1998, authorizes the Department of Water Resources to experimentally test the effects of "modified" flashboards at the SMSCG on salmon behavior. The modifications include gaps between adjacent flashboards. The modified flashboards tend to allow channel water salinity levels in the Marsh to rise somewhat higher than when the standard, full flashboard configuration is used. Experimentation with the modified flashboards began in October 1998. Experimentation with the modified flashboards, or other modifications to the SMSCG, may continue periodically through May 2002.

Observations and Trends

Conditions during the Reporting Period

Channel water salinity levels in the Marsh were mostly a function of Delta outflow, SMSCG operations, and tides during the reporting period. Low Delta outflow during November and December 2000 and prior months caused relatively high salinity levels at all compliance stations throughout the reporting period (Figures 1 and 2). However, SMSCG operation beginning November 4, 2000 helped decrease salinity levels. Periods of higher tides, especially during December helped increase salinity levels.

Daily mean high tide salinity levels at monitoring stations S-35 and S-97 were fairly constant during November but varied somewhat at Mallard Island (Figure 4). Salinity levels at all of these stations varied more during December (Figure 5).

Comparison of Reporting Period Conditions with Previous Years

Monthly mean high-tide SC at the compliance stations and at monitoring stations S-35 and S-97 for November and December 2000 are shown in comparison to means for those months during the nine previous years (Figure 6 and 7).

SUISUN MARSH MONITORING STATIONS AND REPORTING REQUIREMENT

The California Department of Water Resources is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the SWRCB. This requirement is based on SWRCB Water Right Decision 1641, dated December 29, 1999, and on previous SWRCB decisions. Channel water salinity conditions in the Suisun Marsh are determined by monitoring specific electrical conductivity. Specific electrical conductivity is referred to as "specific conductance" in the reports.

The monthly reports are submitted for October through May each year in accordance with SWRCB requirements. The reports are required to include salinity data from the stations listed below:

Station Identification	Station Name	General Location	Status
C-2	Collinsville	Western Delta	Compliance Station
S-64	National Steel	Eastern Suisun Marsh	Compliance Station
S-49	Beldon's Landing	North-Central Suisun Marsh	Compliance Station
S-42	Volanti	North-Western Suisun Marsh	Compliance Station
S-21	Sunrise	North-Western Suisun Marsh	Compliance Station
60	Mallard Island	South of the Eastern Portion of the Suisun marsh	Reporting Station for Conditions in the Vicinity of Chipps and Van Sickle Islands

Data from the stations listed below are included in the monthly reports to provide information on salinity conditions in the western Suisun Marsh. The locations of all listed stations are shown in Figure 7.

Station Identification	Station Name	General Location	Status
S-97	Ibis	Western Suisun Marsh	Monitoring Station
S-35	Morrow Island	South-Western Suisun Marsh	Monitoring Station

Information on Delta outflow, operation of the Suisun Marsh Salinity Control Gates, and area rainfall is included in the monthly reports to provide information on conditions that may affect channel water salinity in the Marsh.

Table 1

**Monthly Mean High Tide Specific Conductance at Suisun Marsh
Water Quality Compliance Stations**

November 2000

Station	Specific Conductance (mS/cm)*
Collinsville, C-2	9.4
National Steel, S-64	9.0
Beldon's Landing, S-49	10.9
Sunrise Club, S-21	12.9
Volanti, S-42	12.4

December 2000

Station	Specific Conductance (mS/cm)*
Collinsville, C-2	10.2
National Steel, S-64	8.5
Beldon's Landing, S-49	9.3
Sunrise Club, S-21	11.3
Volanti, S-42	11.2

* = milliSiemens per centimeter

Note: SWRCB Standards for November 2000 are 15.5mS/cm for Stations C-2, S-64, and S-49; and 16.5mS/cm for Stations S-21 and S-42. The SWRCB standard for December 2000 is 15.5mS/cm for all stations.

Figure 1 - Suisun Marsh Progressive Mean High Tide Specific Conductance for November 2000

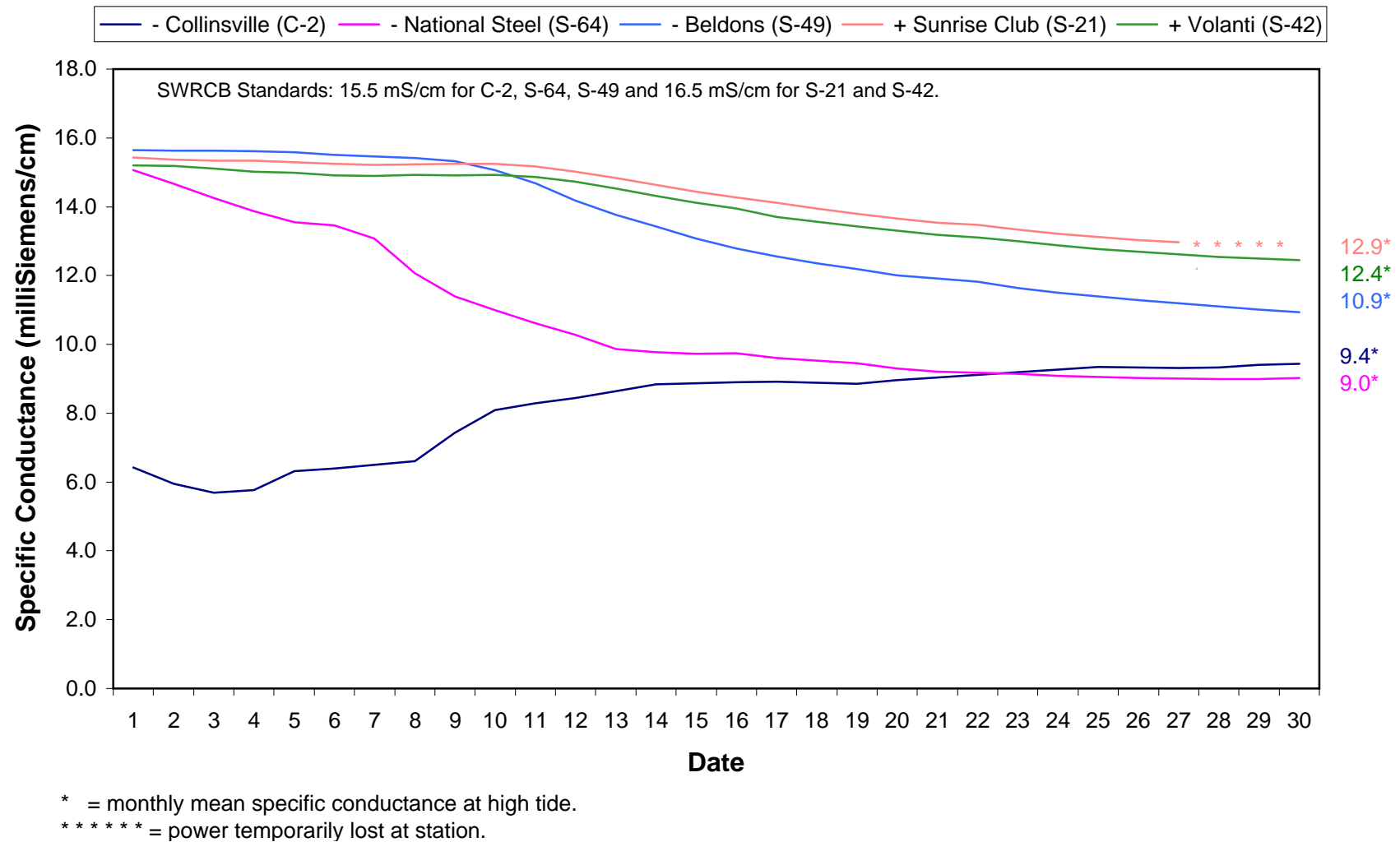
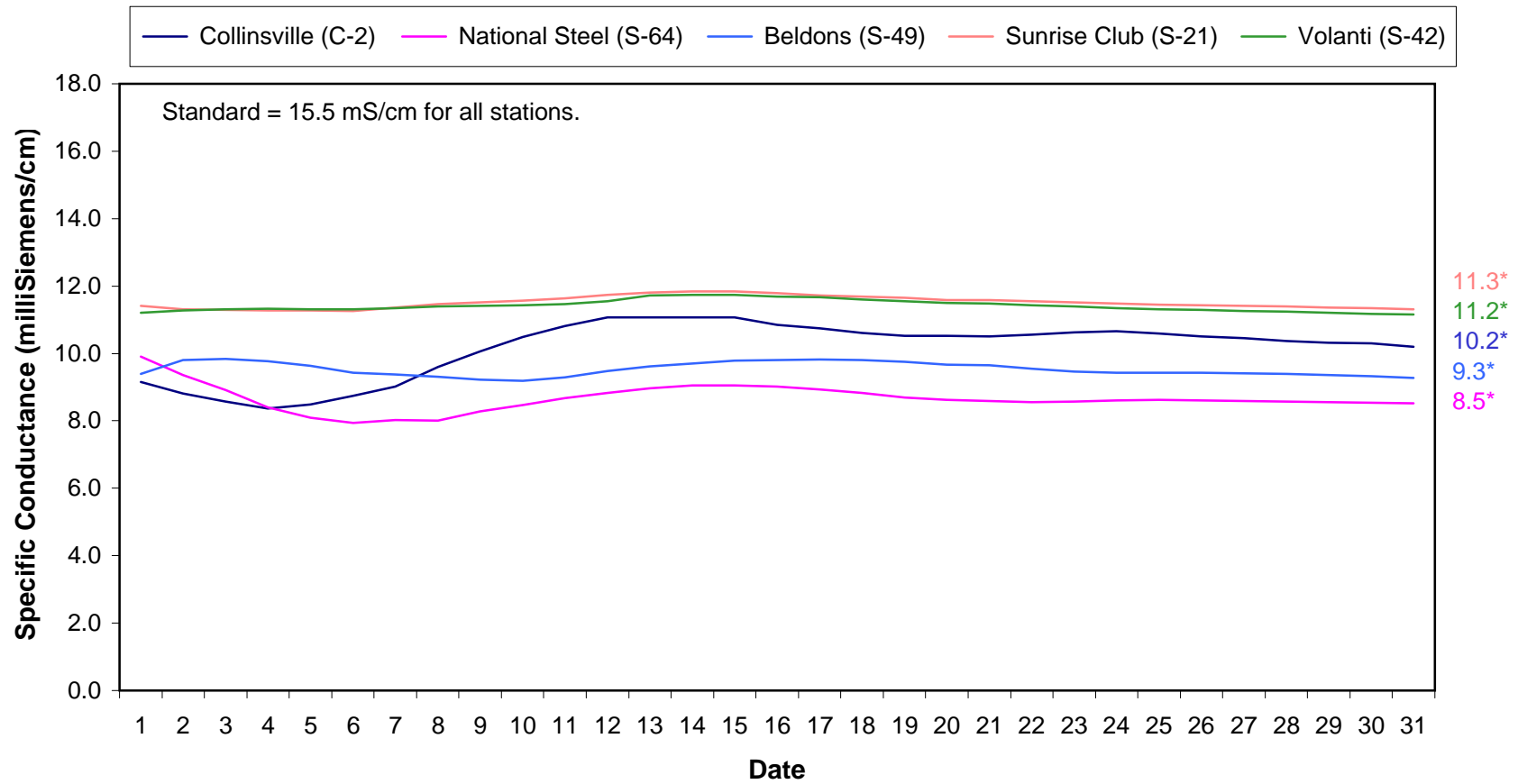
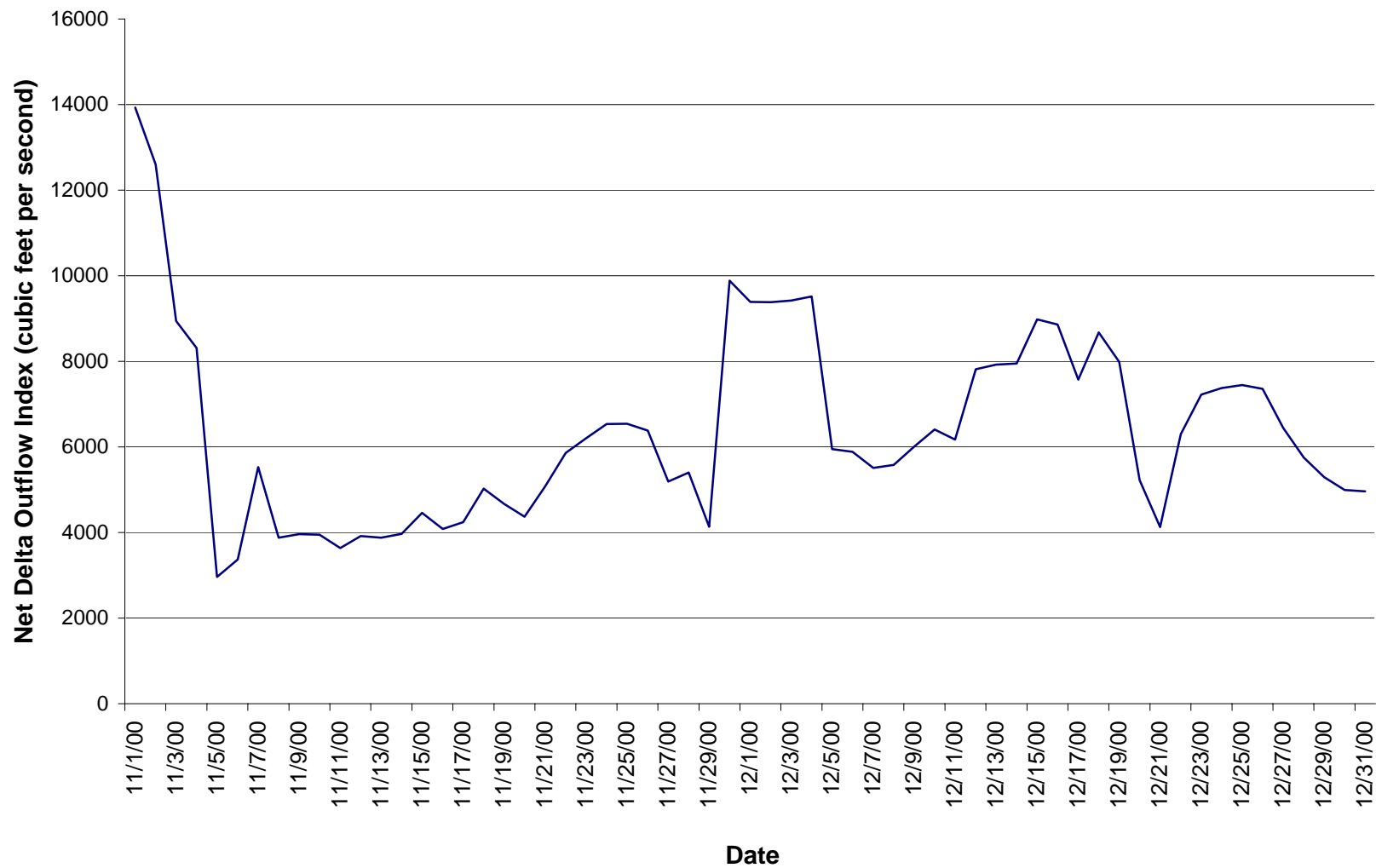


Figure 2. Suisun Marsh Progressive Mean High Tide Specific Conductance for December 2000

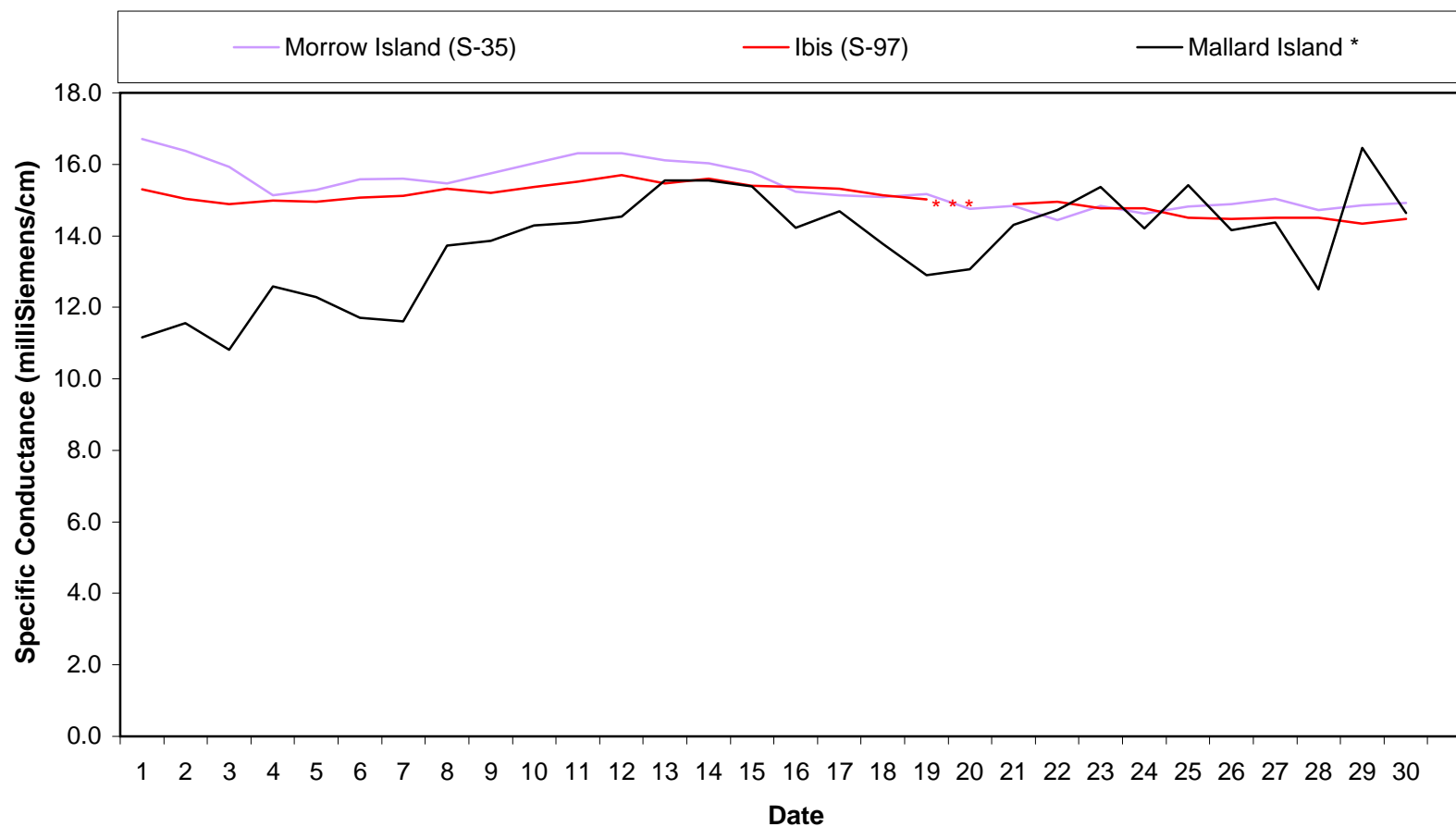


* = monthly mean specific conductance at high tide.

**Figure 3. Net Delta Outflow Index
November through December 2000**



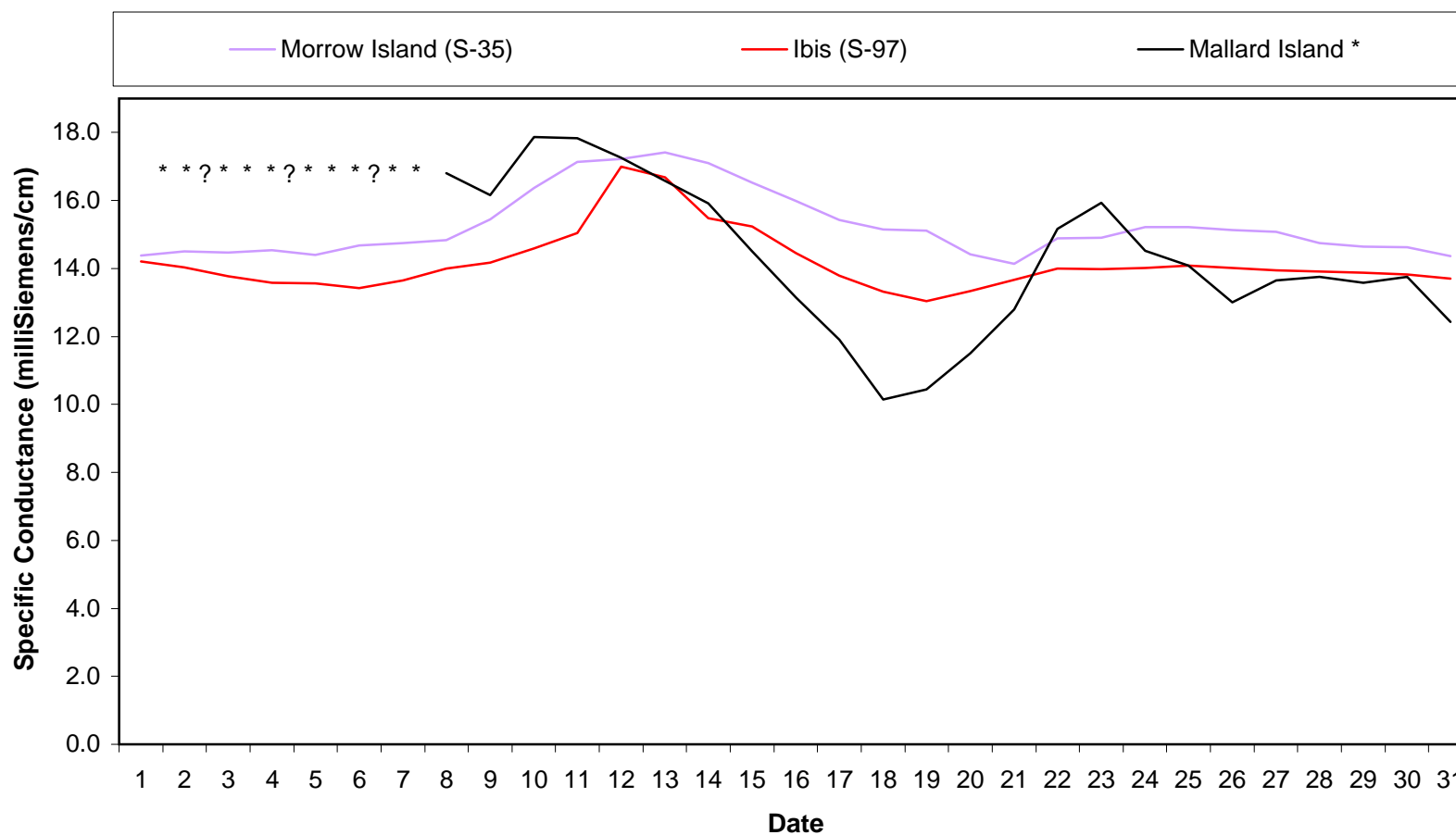
**Figure 4 - Suisun Marsh Daily Mean High Tide Specific Conductance
at Monitoring Stations S-35, S-97, and Mallard Island
November 2000**



* = Mallard Island station data are used to represent conditions at Chipps and VanSickle Islands.

* * * = data recorder missed a day of logging.

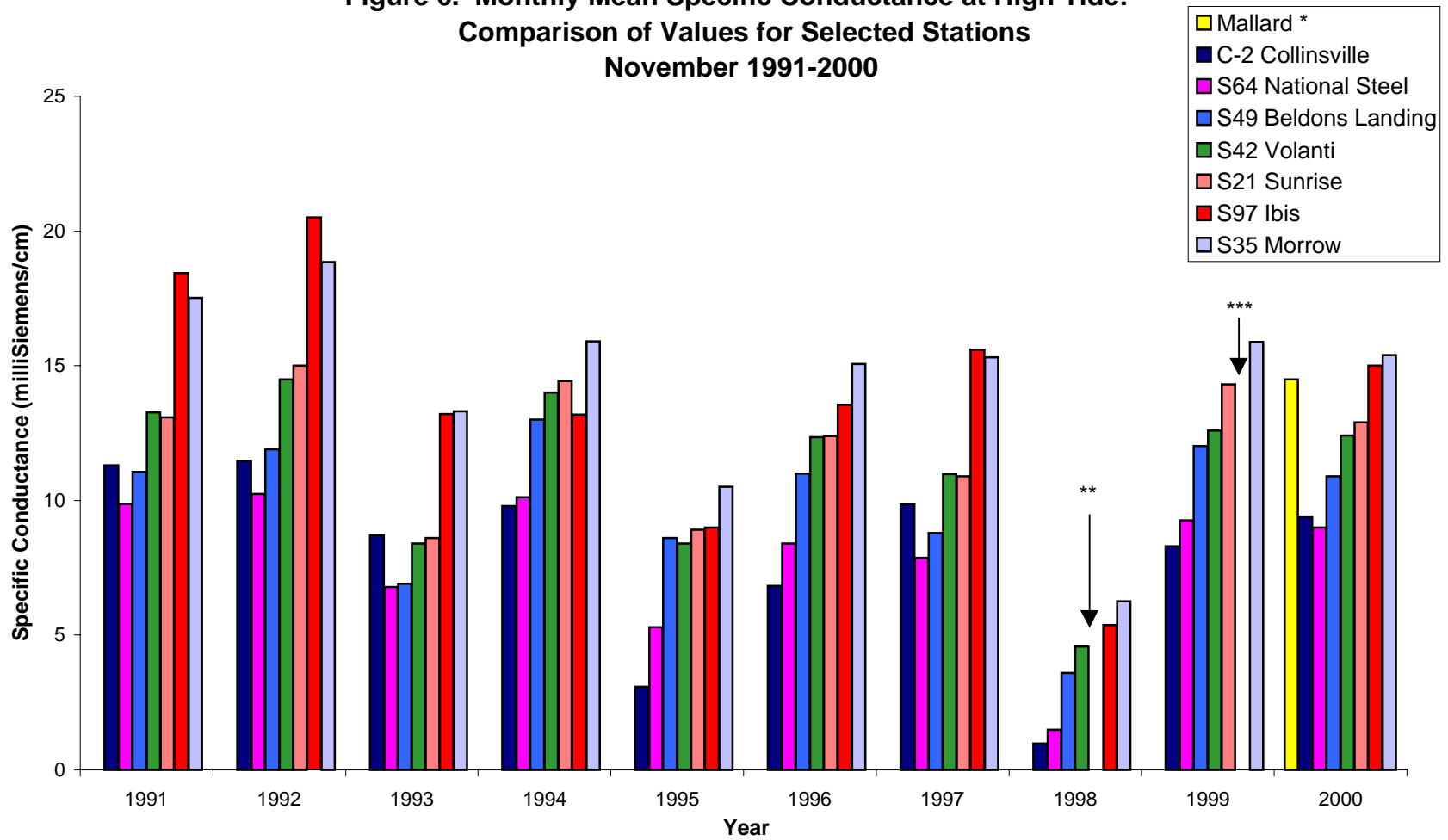
**Figure 5. Suisun Marsh Daily Mean High Tide Specific Conductance
at Monitoring Stations S-35, S-97, and Mallard Island
December 2000**



* = Mallard Island station data are used to represent conditions at Chipps and VanSickle Islands.

* * ? * * * ? * * * ? * * * = data not available.

**Figure 6. Monthly Mean Specific Conductance at High Tide:
Comparison of Values for Selected Stations
November 1991-2000**

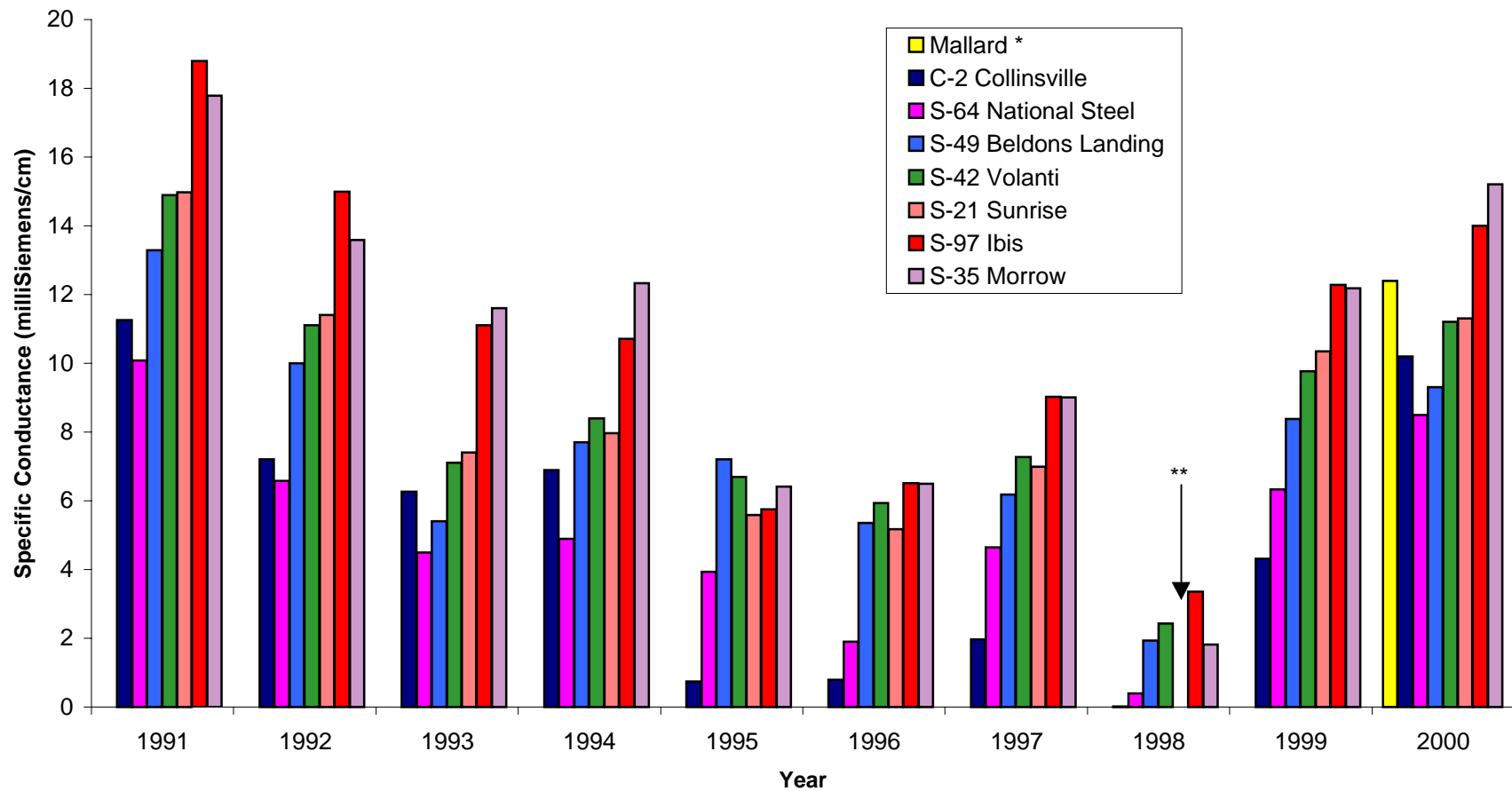


* Beginning in 2000.

** Data was not acceptable due to instrument problems at the station.

*** Tide measurements were not obtainable due to complications associated with station subsidence.

**Figure 7. Monthly Mean Specific Conductance at High Tide:
Comparison of Values for Selected Stations
December 1991-2000**



* Beginning in 2000.

** Data was not acceptable due to instrument problems at the station.